

ALL HAZARD DISASTER PREPAREDNESS FOR KŪPUNA LIVING WITH MOBILITY
IMPAIRMENTS IN PAPA KŌLEA

A DOCTOR OF NURSING PRACTICE PROJECT SUBMITTED TO THE OFFICE OF
GRADUATE EDUCATION OF THE UNIVERSITY OF HAWAII AT MĀNOA IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF NURSING PRACTICE

May 2019

by

Michele Lani Bray

Committee:

Kristine Qureshi, Chairperson
John Casken
Willa Donnelly

Keywords: All Hazard Preparedness, Disasters, Mobility Impairments

Abstract

Introduction: As disasters have increased in frequency and severity, the need for all-hazard disaster preparedness has become more acute. Education on disaster preparedness and risk reduction can decrease negative outcomes significantly. The purpose of this scholarly quality improvement project was to develop, implement, and evaluate the impact of a disaster preparedness education program to assist Native Hawaiian elders with mobility impairments. The primary goal was to promote increased knowledge about disasters and improve all-hazard disaster preparedness (AHDP).

Method: A convenience sample of ten ($n = 10$) elders ages 65 years and older living in Papakōlea participated in a household disaster preparedness educational program along with two staff members. The Brownson Evidence Based Public Health (EBPH) seven-stage process model was used to steer this project (Brownson, Fielding, & Maylahn, 2009). The program consisted of risk awareness and disaster planning education. A pretest and posttest questionnaire listing the same questions were used to determine improved AHDP.

Results: All ten Papakōlea participants (80%) reported an increase in knowledge and confidence in disaster preparedness risk awareness and disaster education. Two Papakōlea staff members trained on use of the disaster preparedness materials demonstrated ability to provide future trainings and sustain the project.

Discussion: Based of the findings, it is recommended that Papakōlea staff continue to provide education within the community of Papakōlea on disaster preparedness and planning for the kūpuna.

Table of Contents

Abstract	ii
List of Tables	v
Chapter 1. Introduction	1
Chapter 2. Description of Problem	2
Background	2
Search Strategy	3
Evidence Themes	3
Application to DNP Project	5
Conceptual Framework	6
PICO Question	7
Purpose/Goals/Aims	7
Chapter 3. Methods and Procedures	8
Project Design	8
Funding	8
Human Subject Consideration	8
Sampling Plan	9
Training Curriculum	9
Data Collection	11
Measurements	11

Chapter 4. Evaluation/Results.....	12
Results.....	12
Participation Feedback.....	13
Chapter 5. Discussion	15
Discussion.....	15
References.....	17
Appendices.....	21
Appendix A Literature Synthesis	21
Appendix B Level of Evidence.....	26
Appendix C Brownson Evidence-Based Public Health Framework	27
Appendix D Logic Model	28
Appendix E Human Subject Consideration	29
Appendix F Emergency Preparedness Items	30
Appendix G Personal Support Network Card.....	31
Appendix H Risk Awareness.....	33
Appendix I Make A Plan.....	34
Appendix J Emergency Supplies on Wheels	35
Appendix K Gantt Chart	36
Appendix L Pretest and Posttest Questions	37
Appendix M Participants Feedback	38

List of Tables

Table 1. Kūpuna Training Curriculum	16
Table 2. Number of Correct Response of Kūpuna	19
Table 3. Responses from Participation Feedback	20
Table 4. AACN DNP Essentials.....	19

Chapter 1. Introduction

The World Bank estimates that every dollar spent on risk reduction saves four to seven dollars in costs associated with emergency response (HelpAge International and United Nations Population Fund (UNFPA), 2012). This is especially true given the worldwide increasing frequency of disasters occurring around the world (National Oceanic and Atmospheric Administration, 2017). All-hazard disaster preparedness (AHDP) is described as a method of strategically planning for potential threats regardless of the natural, man-made, biological, or technological cause of the disaster (Ready.gov, n.d.). AHDP is associated with disaster risk reduction and has been linked to community resilience (Heagele, 2017). Preparing citizens with knowledge and skills related to disaster preparedness is vital for disaster risk reduction.

In the next 50 years, Americans aged 65 years and older will double in population. (Whitney, Visker, Haithcox-Dennis, & DeWeese, 2012). Adults age 65 or older are particularly vulnerable when they cannot respond quickly and take immediate action in emergency situations (Pekovic, Seff, & Rothman, 2007; Heagele, 2017). For example, during Hurricane Katrina, an overwhelming number of deaths were among elders over the age of 75 years (Shih et al., 2018). An estimated 16 million elders live alone and many receive home care services that would be disrupted during a disaster which present challenges and elevate risk factors (Shih et al, 2018). Vulnerable older adults failed to have a disaster plan and lacked the necessary provisions during an emergency, as noted during Hurricanes Sandy and Katrina (Joseph, 2016; Whitney et al., 2012). This growing older population calls for greater disaster planning for the elderly. It is evident there is a great need for enhancing all-hazard disaster preparedness.

Chapter 2. Description of Problem

Background

Hawai‘i faces many challenges being isolated in the middle of the Pacific Ocean. Evacuation to a neighboring state to seek shelter is not an option. Individuals and families must rely on a minimum of two weeks of their own emergencies supplies and resources. If Hawai‘i’s airports and harbors are severely damaged, access to assistance and supplies will be delayed. The impacts disasters have on communities are costly (Benson & Aldrich, 2007; Deryugina, 2017). Hurricane Iniki in 1992 left Hawai‘i with 7.4 billion dollars in damages (Coffman & Noy, 2009; Coffman & Noy, 2012). With the increased manifestation of natural and man-made disasters over the course of two decades, Hawai‘i citizens face an increased risk to their health and safety during a disaster.

Four hundred households on Oahu were surveyed about disaster preparedness. Approximately 6% of participants had a disaster plan and 9% had a disaster go bag (City & County of Honolulu, 2012). The growing population of elderly coupled with their lack of disaster preparation has a direct impact on Native Hawaiian communities. In the State of Hawai‘i, there is approximately 450,000 Native Hawaiians and nearly 24,000 are over the age of 60 (Browne et al., 2014). The aboriginal people of the Hawaiian Islands are called in the Hawaiian language *kānaka maoli*, or Native Hawaiians and the elders are known as *kūpuna*.

The focus of this DNP project was to improve all-hazards disaster preparedness for Native Hawaiian kūpuna with mobility impairments living in Papakōlea on the island of Oahu. The cohort of kūpuna Native Hawaiians with mobility impairment consisted of men and women over the age of 65, who reside, socialize, and worship in the specified Hawaiian Papakōlea

community. Key stakeholders involved in the project include the Papakōlea kūpuna, and Papakōlea Community Center Kula no na Po'e Hawai'i leaders.

Search Strategy

Various computerized searches in CINAHL, PubMed, and Google Scholar were conducted, utilizing terms that included, “all-hazards disaster preparedness”, “disaster preparedness” or “emergency preparedness”, “vulnerable elderly”, “mobility impairment” or “disability” and “frail elderly”. Boolean operators such as “AND” and “OR” were incorporated with limits and filters of the age defined group of elders 65 years and older, and type of articles. Articles included in the synthesis were published between 2002 and 2018.

A total, of 32 articles were reviewed, and 18 articles were critiqued and included in the literature synthesis (Appendix A). Most of the articles found were from research Level VI, descriptive studies (Appendix B). Criteria for the inclusion of articles were based on disability, independent living and the vulnerability of elders. Exclusion of articles in the synthesis focused on nursing homes, assisted living communities, long term care facilities and age.

Evidence Themes

Engagement. Studies that addressed the theme of engagement with elders greatly emphasized that disaster preparedness and planning for elders with disabilities is warranted (Benson & Aldrich, 2007; Fox, Rooney, Rowland, & White, 2007; Cornell, Cusack, & Arbon, 2012; Whitney et al., 2012). Most of the studies that were conducted were from literature reviews, census tract information, or county data. The studies lack data on actual conversations with the elder population in addressing their expressed needs. In another study however, home interview sessions were conducted and revealed elders who engaged with communities have improved preparedness (Gershon et al., 2017).

Disability. Considerable literature exists that describes mobility impairment as the main disability in most studies. Elders with mobility impairments are slow to evacuate, and as a consequence of, are unable to exit in a timely manner on their own. In some cases elderly have been left behind by rescuers (Fox et al., 2007; Nick et al., 2009; Stough, 2015; Cloyd & Dyer, 2010; Whitney et al., 2012). In a 2005 survey in the United States, approximately 13 million adults aged 50 and older would need assistance to evacuate and nearly 6 million of those adults would need help from an outside source (Benson & Aldrich, 2007; Heagele, 2017). Moreover, preparedness plans for those living with disabilities are significantly lower as opposed to those without a disability (Gershon, Kraus, Raveis, Sherman, & Kailes, 2013). A guide on disaster planning for families and elders with mobility impairments would be beneficial.

Household Risk Communication. Fernandez et al., reported that frequently elders are not forewarn of impending disasters (Fernandez et al., 2002; Fox et al., 2007; Nick et al., 2009; Heagele, 2017). This research stressed the importance of the use of alert systems, such as cell phone text messaging, phone tree, or a neighbor warning system (Al-rousan, Rubenstein, & Wallace, 2014; Heagele, 2017). Emphasis on individualized mechanism of a notification system should be explored with elders, family members, and neighbors based on the cultural considerations in the community setting.

Vulnerability. Vulnerability poses a major challenge in most studies on which many articles sought to explore the term and define vulnerability. Some argue that elder populations are not considered vulnerable populations based on their numerical age (Nick et al., 2009; Stough, 2015; Cornell et al., 2012). Following mounting evidence, many studies concluded that elders are particularly vulnerable when they cannot respond quickly in emergency situations (Gershon et al., 2017; Pekovic, Seff, & Rothman, 2007; Benson & Aldrich, 2007; Heagele, 2017). An all-

hazards guide and practice drill simulation would be an asset that could positively impact the optimal health and safety of the elders in the community by decreasing the threats of injury and disease (Hoard et al., 2005; Heagele, 2017). Having a plan, checklist guide and families conducting disaster drills can resolve this problem.

Application to DNP Project

The strategy that was used incorporates a quality improvement and educational plan of a cohort of Native Hawaiian kūpuna with mobility impairments. A needs assessment was conducted that illustrated kūpuna lacked household disaster plan preparedness, emergency preparedness kits, and special mobility requirement resources. The result of the needs assessment was incorporated into the AHDP educational program. In addition, respectful care towards kūpuna was deemed to be important when providing nursing services including sensitivity to kūpuna pride (Browne et al., 2014).

Nurses are experts in implementing AHDP education. Nursing interventions included risk awareness and disaster education for kūpuna and members of the Kula no na Po'e Hawai'i community in Papakōlea (Nick et al., 2009). An AHDP bundle was adapted from a variety of resources commonly used for disaster preparedness. The resources included the American Red Cross (ARC) Disasters Preparedness for Seniors by Senior's booklet, and the Disability and Communication Access Board (DCAB), 2014) brochure. The ARC focus is on three main areas: "Get a Kit", Make a Plan, and Be Informed (ARC, n.d.). An emergency checklists is imperative for the kūpuna population with mobility impairments. (Fernandez et al., 2002; Heagele, 2017). The "Get a Kit" section of the bundle focused on the essential items to store away for emergencies. Food and water, electronics, medications, medical supplies and first aid, clothes and personal care items, documents, cash, and equipment were among the essentials to store (Al-

rousan et al., 2015; Whitney et al., 2012; Heagele, 2017). Special supplies, such as walking devices, wheelchairs, canes and other necessities needed for those with mobility impairments were included in the bundle from the DCAB resource list along with the make a plan section. All of the resources are further discuss in the methods section of the paper.

An additional intervention included in the bundle addressed the neighborhood all-hazards disaster community reporting system and being informed (Fernandez et al., 2002; Heagele, 2017). Coordinated warning and alert systems with neighbors and community members are a community responsibility or *kuleana*, keeping in mind, the cultural considerations of the indigenous population of Native Hawaiians. These innovations will be sustained by Kula no na Po‘e Hawai‘i as they are the caregivers to the unique needs of the Native Hawaiian community in Papakōlea.

Conceptual Framework

Brownson’s (2009) evidence-based public health framework was used to guide the project. The tools of the framework include engagement with the community and the decision-making process. The framework (Appendix C) includes: community assessment, qualifying the issue, developing a concise statement, determining what is known using scientific literature, developing and prioritizing program and policy option, developing an action plan, implementing the interventions, and evaluating the program or policy (Jacobs, Jones, Gabella, Spring, & Brownson, 2012).

One key area that is important when working in communities is building trust and respect. The Brownson framework takes into account not only the evidence but also the population’s response to the proposed intervention. The steps outlined in the framework are a

closed circle or *Pōhai* which is symbolic to the Native Hawaiian population as an influence of gathering, beginning in the circle of life, and one that is continuous.

PICO Question

For Native Hawaiian kūpuna 65 years and older living in Papakōlea, is an all hazards disaster preparedness (AHDP) education program tailored for those with mobility impairments effective in increasing preparedness as compared with standard disaster information?

Purpose/Goals/Aims

The purpose of this evidence-based project (EBP) was to improve all-hazards disaster preparedness in elders or kūpuna living with mobility impairments in the Papakōlea community on the island of Oahu. The cohort of elder Native Hawaiians with mobility impairments consisted of men and women over the age of 65, who reside in the specified Papakōlea community.

The objective of this EBP was to (1) develop an AHDP educational training program and resources, (2) conduct a training workshop for Papakōlea staff and volunteers, and (3) provide kūpuna with AHDP education information. The primary goal was to increase knowledge about AHDP among kūpuna with disabilities, and increase confidence of AHDP among Papakōlea community center staff to provide AHDP education to kūpuna in the community as shown in the logic model (Appendix D).

Chapter 3. Methods and Procedures

Project Design

This project is consistent with a quality improvement project in that the goal was to apply knowledge and understanding of disaster preparedness, which leads to improved outcomes for the safety and welfare of the kūpuna and the Papakōlea community. Pretests and posttests were used at the educational session and program evaluation.

Funding

The financial considerations of the project required minimal funding. The only cost situated around the project was the paper printing and staff hours of work towards the benefit of improved knowledge of AHDP for kūpuna.

Human Subject Consideration

The AHDP project was a quality improvement and educational plan and does not fall under the scope of the Institutional Review Board (IRB) of a Human Studies Program. The author completed the Collaborative Institutional Initiative Training (CITI) for research ethics and compliance, and Health Insurance Portability and Accountability Act (HIPAA) Training on patient privacy protection. This DNP project involved making judgments about a program to improve or further develop program effectiveness and inform decisions about future programming within an organization (University of Hawai'i Human Studies program, personal communication, August 2, 2018). All these tasks are related to quality improvement and will not produce generalized knowledge. Thus, this project did not require IRB application and review (Appendix E).

Sampling Plan

The sampling plan consisted of Native Hawaiian kūpuna 65 years and older with mobility impairments in the setting of Papakōlea on the island of Oahu. The project used a convenience sample to recruit a cohort of kūpuna participants. The number of kūpuna willing to participate was 10. The kūpuna congregate every Thursday morning for informational sessions and holiday celebration activities at the community center. Flyers were posted at the community center. In addition, the community staff provided reminders during their home visits, weekly phone calls or mailings.

Criteria for inclusion were based on Native Hawaiian kūpuna with mobility impairment either living independently or in an *‘ohana* or family style accommodations, a resident of Papakōlea, and agreement to participate in the project. Exclusion criteria included disabilities other than mobility, cognitive deficits, inability to converse or complete forms, residence in nursing homes, assisted living communities or long term care facilities, and less than 65 years of age. The limitations of this project included the nature of participants self-reporting, a small sample size of participants with mobility impairments and the homogeneity of *kānaka maoli* of the group limited diversity.

Training Curriculum

The curriculum for the trainings on disaster preparedness was offered in the local method called “*talk story*” sessions. Talk story in Hawai‘i is a common method to engage with others to discuss topics freely through sharing and learning from each other’s experiences. Historically, Hawaiian ancestor passed information to others through language rather than the written word. During the trainings kūpuna shared their experiences of managing through disaster that happened in years past. The talk story session engaged kūpuna on the critical points of material threaded

through the training. The disaster preparedness item kit for people with disabilities handout (Appendix F) was distributed to kūpuna to detail the supplies required for a 14 day kit for each person (DCAB, 2014). A personal support network of family and friend's wallet size cards were provided for kūpuna to list the contact information of those who would provide assistance in the event of a disaster (Appendix G). Various handouts were made available during the talk story sessions referencing risk awareness (Appendix H), Make a Plan (Appendix I), and including a picture of an emergency preparedness kit on wheels (Appendix J). Table 1 summarizes the key points covered in the curriculum.

Table 1.

Kūpuna Training Curriculum

Topic	Critical points of discussions
Pretest	Administer the pretest to participants.
Types of Disasters	Describe natural disasters in a talk story fashion Discuss the components of man-made disasters in a talk story fashion
Risk Awareness	Explain handout on risk awareness for the individual at risk, home at risk, and community at risk to formulate a plan
Make a Plan	Formulated a plan by discussing measures to discuss with family and complete contact information required on form.
Prepare a Kit	Design an emergency go kit activity for quick evacuation
Kūpuna Support Network	Wallet size card for emergency planning listing meeting place, contact phone numbers and neighbor notification phone numbers.
Emergency Preparedness Kit on Wheels	Demonstrate the makings of an emergency preparedness suitcase on wheels.
Posttest	Administer posttest to participants.
Evaluation	Complete Feedback Form.

Data Collection

Implementation of the project commenced on August 2018 with the completion of the project in February 2019 as displayed in the Gantt chart (Appendix K). The development of the educational program started June 2018 in preparation in holding the first educational sessions in the fall of 2019 along with constructing the databases. The instrument tool used to form the pretest and posttest was adapted from the Rand Corporation guide for community emergency preparedness (Ebener et.al, 2017). Qualitative and quantitative descriptive data was collected from the pretest and posttest in the form of answers to multiple choice questions and true and false questions from each encounter. Microsoft Excel was used for data input. Data was analyzed and shared with the Papakōlea participants and staff on the effectiveness of AHDP education in meeting the cadre of objectives and outcomes.

Measurements

The same questions were used on the pretest and posttests which measured the knowledge obtained from the disaster preparedness trainings. The test questions consisted of four multiple-choice questions and one true and false question (Appendix L).

Chapter 4. Evaluation/Results

Results

The results did show increases in knowledge between the pretest questions and the posttest questions of correct answers administered to kūpuna at Papakōlea. The main goal was to educate and build capacity on disaster preparedness activities. Ten kūpuna from Papakōlea participated in the talk story teaching session. The two staff members from Papakōlea had a high level of knowledge (pretest score of 100%). Therefore there was with no room for improvement. One staff member is trained in disaster preparedness and shelter coordination for the Papakōlea community. The other staff member coordinates health and wellness activities and attended previous disaster preparedness informational sessions. The two staff members will continue the sustainability efforts of disaster preparedness activities for the Papakōlea community.

Table 2.

Number of Correct Responses: Pretests and Posttests of the Kūpuna

Pretest and Posttest Question	# Pretest answered correctly	#Posttest answered correctly
1. Family Disaster Supplies	9	10
2. Family Emergency Plan	7	9
3. Shelter in Place	10	10
4. Emergency Supply Kit	5	9
5. Supplies - Number of Days	6	8
Mean	7.4	9.2

n = 10.

These results suggest that AHDP education does have an effect on improving knowledge among the kūpuna participants. There was a statistically significant increase between pretest

knowledge (M=7.4) to posttest knowledge (M=9.2), (paired student t-test $p \leq 0.05$).

Participation Feedback

Kūpuna participants provided feedback using the Papakōlea standard evaluation feedback form that consisted of two questions on a Likert scale of one to five, with five being the best, four questions with answers of either yes or no and three open ended questions (Appendix M). Feedback from kūpuna was positive and revealed that they enjoyed the educational session. Kūpuna stated during the presentation that they had never thought of placing disaster preparedness items in a suitcase with wheels. All were in agreement the suitcase would make it much easier for them to evacuate to another room or a shelter if they cannot remain in their home.

Participants Feedback

Table 3.

Number of Responses to Participation Feedback

Question	Response
How informative was this presentation? (How much did you learn?)	Very much x 10 responses
How interesting was this presentation? (How much did you enjoy it?)	Very much x 10 responses
Were the speaker(s) voice loud and clear?	Yes x 10 responses
Was the presentation easy to follow?	Yes x 10 responses
Were visuals clear and understandable?	Yes x 10 responses
Were the presenter(s) organized?	Yes x 10 responses
What did you like about this workshop?	<ul style="list-style-type: none"> • Get packing & get ready • Prepared information and items/important papers • Thorough and concise • Very good & get the whole community involved • Gave us advice, good work • Very informative • Great information and handouts • Living safe • Useful information, will get started on preparedness kit • Additional information to improve my preparedness • Everything

Chapter 5. Discussion

Discussion

Participants shared that the educational session was very informative and improved their preparedness. Quality improvement projects on AHDP are essential for community disaster risk reduction. The goal of this project was to promote increased knowledge about disasters and improve AHDP. Based on the findings and participants feedback, it is recommended that the staff at Papakōlea continue to provide education on disaster preparedness and planning to meet outcome measures. The continuation of trainings will develop confidence in self-help strategies by the kūpuna and the community towards positive outcomes in the event of future catastrophic disasters. Next steps will include measuring the number of complete plans and disaster preparedness kits during a home visit or submission of cell phone picture taking of plans and kits for Papakōlea staff to review.

Table 4.

AACN DNP Essentials

DNP Essentials	Component of Project
Essential I: Scientific Underpinnings for Practice	Brownson's Evidence-Based Public Health Framework was used to guide project, and linking interventions. Themes from scientific literature validated interventions and tool for practice change for vulnerable population.
Essential II: Organizational & System Leadership for Quality Improvement and Economics	Developed a culturally "Talk Story" format to implement practice change. Designed informational sessions at no cost to community center.
Essential III: Evidence-based Practice and Translation Science	Synthesis and critique of literature Implementation of practice change Analyze the data Evaluation and feedback Improved AHDP outcome
Essential IV: information Systems and technology	Utilized End-Note electronic database to collect and store literature reviews. Developed an Excel file to store literature critiques, and t-test data Care through technology
Essential V: Health Care Policy and Ethics	Quality improvement project Informed community of state resources and policies. Confidentiality and Privacy maintained with pretest and posttest.
Essential VI: Interprofessional Collaboration	Collaborated with community certified caregivers, social workers and staff on disaster mitigation, preparedness, and response.
Essential VII: Prevention and Population Health	Developed educational "Talk Story" format on all-hazard disaster preparedness. Education to community kūpuna to reduce risk
Essential VIII: Advance Nursing Practice and Education	Demonstrated leadership in AHDP planning, implementation and evaluation.

References

- Al-Rousan, T., Rubenstein, L., Wallace, R. (2014). Preparedness for natural disasters among older US adults: A nationwide survey. *American Journal of Public Health*, 104(3), 506-511.
- American Red Cross (n.d.). Disaster preparedness: for seniors by seniors. Retrieved from https://www.redcross.org/content/dam/redcross/atg/PDF_s/Preparedness___Disaster_Recovery/Disaster_Preparedness/Disaster_Preparedness_for_Srs-English.revised_7-09.pdf
- Association of State and Territorial Health Officials. (2017). *Evidence based public health*. Retrieved from <http://www.astho.org/Evidence-Based-Public-Health/Toolkit/>
- Benson, W. F., & Aldrich, N. (2007). CDC's disaster planning goal: Protect vulnerable older adults. *CDC Health Aging Program*.
- Brown, C., Mokuau, N., Ka'opua, L., Kim, B., Higuchi, P., & Braun, K. (2014). Listening to the voices of Native Hawaiian elders and 'ohana caregivers: Discussions on aging, health, and care preferences. *Journal Cross Cultural Gerontology*, 29(2), 131-151.
- Brownson, R.C., Fielding, J. E., & Maylahn, C. M. (2009). Evidence-based public health: A fundamental concept for public health practice. *Annual Review of Public Health*, 30, 175-201.
- City and County of Honolulu. (2012). *A perfect day to plan for a disaster*. Retrieved from https://www.honolulu.gov/rep/site/dem/dem_docs/pamphlets/RCPG_FY09_HIPA_Final_Report_31_Dec_2012.pdf
- Cloyd, E., & Dyer, C. B. (2010). Catastrophic events and older adults. *Critical care nursing clinics of North America*, 22(4), 501-513.

- Coffman, M., & Noy, I. (2009). A hurricane's long term economic impact: The case of Hawai'i's Iniki. *University of Hawaii Economics Working Paper*.
- Coffman, M., & Noy, I. (2012). Hurricane Iniki: measuring the long-term economic impact of a natural disaster using synthetic control. *Environment and Development Economics*, 17(2), 187- 205.
- Cornell, V. J., Cusack, L., & Arbon, P. (2012). Older people and disaster preparedness: a literature review. *Australian Journal of Emergency Management*, 27(3), 49.
- Disability and Communication Access Board (2014, July) Emergency preparedness kit for people with disabilities (Pamphlet) (Honolulu, HI)
- Deryugina, T. (2017). The fiscal cost of hurricanes: Disaster aid versus social insurance. *American Economic Journal: Economic Policy*, 9(3), 168-98.
- Ebener, P., Hunter, S., Adams, R., Eisenman, D., Acosta, J., Chinman, M., (2017). Getting to outcomes guide for community emergency preparedness. Rand Corporation. Retrieved from www.rand.org/pub/tools/TL259.html
- Fernandez, L. S., Byard, D., Lin, C. C., Benson, S., & Barbera, J. A. (2002). Frail elderly as disaster victims: emergency management strategies. *Prehospital and disaster medicine*, 17(2), 67-74.
- Fox, M. H., Rooney, C., Rowland, J., White, G. (2007). Disaster preparedness and response for persons with mobility impairments: Results from the University of Kansas nobody left behind study. *Journal of Disability Policy Studies*, 17(4). 196-205.
- Gershon, R. R., Portacolone, E., Nwankwo, E. M., Zhi, Q., Qureshi, K. A., & Raveis, V. H. (2017). Psychosocial influences on disaster preparedness in San Francisco recipients of home care. *Journal of Urban Health*, 94(5), 606-618.

- Gershon, R. R., Kraus, L. E., Raveis, V. H., Sherman, M. F., & Kailes, J. I. (2013). Emergency preparedness in a sample of persons with disabilities. *American Journal Disaster Medicine*, 8(1), 35-47.
- Hawaii State Plan on Aging (2011-2015). AARP. Retrieved from www.aarp.org/.../plan/planning/hawaii-state-plan-on-aging-2011-2015-aarp.pdf
- Heagele, T. (2017). Disaster- Related Community Resilience: A Concept Analysis and a Call to Action for Nurses. *Public health nursing*, 34(3), 295-302.
- Healthy People 2020. (n.d.) *Healthy People 2020*. Retrieved from <https://www.healthypeople.gov/>
- HelpAge International and United Nations Population Fund (UNFPA) (2012), *Ageing in the Twenty-First Century: A Celebration and a Challenge*, New York and London, UNFPA and HelpAge International.
- Hoard, M., Homer, J., Manley, W., Furbee, P., Haque, A., & Helmkamp, J. (2005). Systems modeling in support of evidence-based disaster planning for rural areas. *International Journal of Hygiene and Environmental Health*, 208(1), 117-125.
- Jacobs, J., Jones, E., Gabella, B., Spring, B., & Brownson, R. (2012). Tools for implementing an evidence-based approach in public health practice. *Preventing Chronic Disease*, 9.
- Joseph, M. (2016), Faith-based leaders caring for older adults in a natural disaster: A study of hurricane sandy. (Doctoral dissertation, Molloy College). Retrieved from <http://digitalcommons.molloy.edu/etd/18>
- National Oceanic and Atmospheric Administration, National Centers for Environmental Information, Billion-dollar weather and climate disasters: Table of events, 2017. As of November 1, 2017: <https://www.ncdc.noaa.gov/billions/events/US/1980-2017>

- Nick, G., Savoia, E., Elqura, L., Crowther, M., Cohen, B., Leary, M.,... Koh, H. (2009). Emergency preparedness for vulnerable populations: People with special health-care needs. *Public Health Reports*, 124(2). 338.
- Pekovic, V., Seff, L., & Rothman, M. (2007). Planning for and responding to special needs of elders in natural disasters. *Generations*, 31(4), 37-41.
- Ready.gov. (n.d.). Planning. Retrieved from <https://www.ready.gov/planning>
- Shih, R., Acosta, J., Chen, E., Carbone, E., Xenakis, L., Adamson, D., Chandra, A. (2018). Improving disaster resilience among older adults. Insights from public health departments and aging-in-place efforts. *Rand Health Quarterly*, 8(1).
- Stough, L. M. (2015). World report on disability, intellectual disabilities, and disaster preparedness: Costa Rica as a case example. *Journal of Policy and Practice in Intellectual Disabilities*, 12(2): 138-146.
- The Department of Business, Economic Development and Tourism. (2015). Retrieved from <http://dbedt.hawaii.gov/>
- United Nations Office for Disaster Risk Reduction. (2005). Hyogo framework for action 2005-2015: Building the resilience of nations and communities to disasters summary. Retrieved from <https://www.unisdr.org/we/inform/publications/8720>
- University of Hawai‘i Hawaiian Studies Program Personal Communication, August 2, 2018
- Whitney, E., Visker, J., Haithcox-Dennis, M. J., & DeWeese, A. (2012). Independently Living Rural Seniors and Emergency Preparedness: A Pilot Study in Southern Illinois. *Health Educator*, 44(1), 21-27.

Appendices

Appendix A

Literature Synthesis

Author / Title / Journal	Year	Study Design	Sample	APA Citation	Data Collection	Level of Evidence	Findings	Used in Synthesis	Limitations
Aldrich, Nancy Benson, William F Peer reviewed: disaster preparedness and the chronic disease needs of vulnerable older adults Preventing chronic disease	2008	Non-experimental Purpose: Planning for assisting vulnerable older special needs adults during a disaster	Random Literature review and statistics	Aldrich, N. and W. F. Benson (2008). "Peer reviewed: disaster preparedness and the chronic disease needs of vulnerable older adults." Preventing chronic disease 5(1).	Qualitative	Level of evidence – VII Authority opinion	Link elders to aging services, EP, Planning and coalition building Geographic mapping systems Surveillance and assessment Handbooks Communication systems	NO	None – Review of literature
Al-rousan, T Rubenstein, L. Wallace, R. Preparedness for Natural Disasters Among Older US Adults: A Nationwide Survey American Journal Public Health.	2014	Non-experimental - Survey Purpose: To determine natural disaster preparedness levels among older US adults. Assess factors that adversely affect health and safety.	Random N=1304 Survey Interview Sample: adults 50 years and older Mean = 70 years Data on factors: 1) Demographics 2) Disability status 3) Functional limitations 4) Preparedness behaviors	Al-Rousan, T. M., et al. (2014). "Preparedness for natural disasters among older US adults: a nationwide survey." American journal of public health 104(3): 506-511.	Cohort study Mixed Method - Quantitative and Qualitative Analytical study population	Level of Evidence – VI Descriptive study – Survey and data cross-sectional	Findings: 34.3% participated in disaster trainings. 15% use electrical medical devices Unprepared r/t age, disability, lack of education, and income. don't ask for help, invisible to rescue teams	YES	Self-reported Some validated, others need further scrutiny Some survey items are hypothetical & not experienced by respondents. Hypothetical Data were cross-sectional & did not reflect future preparedness capacity
Benson, W. F., Aldrich, N. CDC's disaster planning goal: protect vulnerable older adults. <i>CDC Health Aging Program.</i>	2007	Non-experimental design Purpose: To identify strategies and tools for disaster preparedness. Advocate for frail elderly. Assess factors that adversely affect health and safety. Understanding older adults.	Review of literature	Benson, W. F., & Aldrich, N. (2007). CDC's disaster planning goal: protect vulnerable older adults. <i>CDC Health Aging Program.</i>	Qualitative	Level of Evidence – VI Other	Findings: Impaired mobility, Response to crisis limited Lack access to transportation Reluctant to seek assistance	YES	Review of literature
Browne, C. V., Mokuau, N., Lana, S., Kim, B. J., Higuchi, P., & Braun, K. L. Listening to the voices of Native Hawaiian Elders and 'Ohana Caregivers: discussions on aging, health, and care preferences. <i>Journal of cross-cultural gerontology</i> , 29(2), 131-151.	2014	Purpose: Investigating the health needs and caregiving for nā kūpuna, elders and their families (ohana).	Qualitative, mixed-method design study. Convened 6 focus groups n = 24 kūpuna n = 17 caregivers Listening sessions	Browne, C. V., Mokuau, N., Lana, S., Kim, B. J., Higuchi, P., & Braun, K. L. (2014). Listening to the voices of Native Hawaiian Elders and 'Ohana Caregivers: discussions on aging, health, and care preferences. <i>Journal of cross-cultural gerontology</i> , 29(2), 131-151.	Qualitative Mixed-method design study. Convened 6 focus groups	Level of evidence – V	Findings: Universal concerns with age and caregiving, cost, influences of culture, social stressors Results: Access to programs Policies development	YES	Small sample size and limited generalizability. Inclusion – that kūpuna are capable to attend a 1.5hr focus group
Brune, J. Dahrouge, D. Engelman, A. Ivey, S. Neuhäuser, L. Tseng, W. Responding to the deaf in disasters: establishing the need for systematic training for state-level emergency management agencies and community organizations. BMC Health Services Research	2013	Non-experimental Describes qualitative results from literature reviewed and from 50 key informant (KI) interviews. Pilot program evaluation of EMS responders working with the deaf.	Random Sample n = 50 n = 14 50 KI interviews from state/territorial level EMS and PH. 14 KI with deaf-serving CBOs	Engelman, A., et al. (2013). "Responding to the deaf in disasters: establishing the need for systematic training for state-level emergency management agencies and community organizations." BMC health services research 13(1): 84.	Descriptive statistics and bivariate analysis Qualitative coding Lit review - Zero peer-reviewed articles on deaf in PubMed and Google scholar in-depth semi-structured (KI) interview.	Level of evidence – VI Descriptive studies	Gaps in EP training for serving the deaf. Gap in literature r/t deaf and EP Lack cultural competency training of staff Lack of attendance to trainings, training of others, and educational materials	NO	Small sample size Small number of deaf serving CBOs Deafness low incidence disability One of the instruments for evaluation –peer reviewed, lack of available instruments.
Burnett, Jason Dyer, Carmel Pickins, Sabrina	2017	Non-experimental Purpose: Study determined that	N - 300 SWIFT Assessments Average age 66.1yrs. Tool development-Seniors	Burnett, J., et al. (2007). "Rapid needs assessments for older adults in disasters." Generations 31(4): 10-15.	Qualitative	Level of evidence – VI Descriptive studies	68% needed urgent medical or mental health assistance (54\$ HTN, 27%Diabetes, 22% heart disease, 10%	NO	Modifications to tool

Author / Title / Journal	Year	Study Design	Sample	APA Citation	Data Collection	Level of Evidence	Findings	Used in Synthesis	Limitations
Rapid needs assessments for older adults in disasters Generations		impaired physical mobility and other disabilities increased the vulnerability of frail older adults during disasters. SWIFT Tool, a rapid assessment tool	Without Family Triage (SWIFT) 13 question total - Medical/mental health=level 1, financial = level 2, and social = level 3, (10 minute assessment tool). Used at the Houston Astrodome - Hurricane Katrina				memory problems) 18% needed financial assistance 4% needed reunification with family/friends 5% - required no assistance		
Butler, Kathryn M Furman, Susanne M Kuligowski, Erica D Peacock, Richard D Perspectives of occupants with mobility impairments on fire evacuation and elevators US Department of Commerce, National Institute of Standards and Technology	2017	To gain an understanding of how building occupants with mobility impairments evacuate multi-story buildings during fire emergencies and to identify the concerns about using elevators during fire evacuations Provide Fire personnel with information.	N=51 5 US Metro cities	Butler, K., et al. (2017). "Perspectives of occupants with mobility impairments on evacuation methods for use during fire emergencies." Fire Safety Journal.	Qualitative semi-structured interviews	Level of Evidence – VI Descriptive study	Causes of mobility difficulties for the participants included congenital conditions, progressive diseases, and injuries, and the vast majority use wheelchairs at work Participants don't want to participate in fire drills because of the stress & discomfort it causes.	NO	Self -reported
Cloyd, Elizabeth Dyer, Carmel B Catastrophic events and older adults Critical care nursing clinics of North America	2010	Elders ability to discern when to evacuate due to limitations and mobility impairments	Review of literature	Cloyd, E. and C. B. Dyer (2010). "Catastrophic events and older adults." Critical care nursing clinics of North America 22(4): 501-513.	Qualitative	Level of Evidence – VI	Mobility impairments Nurses role in EP is critical Building resilience	YES	Review of literature
Coffman, M. Noy, I A hurricane's long-term economic impact: The case of Hawaii's Iniki. <i>University of Hawaii Economics Working Paper.</i>	2010	Understanding the macro economic impact of disasters	Maui control group	Coffman, M., & Noy, I. (2009). A hurricane's long-term economic impact: The case of Hawaii's Iniki. University of Hawaii Economics Working Paper.	Synthetic control method	Level of Evidence – III Comparative Quasi-experimental	Recovery of labor force and population Hidden adverse effects of disasters	YES	
Coffman, M. Noy, I A Hurricane Iniki measuring the long-term economic impact: of a natural disaster using synthetic control. Environment and Development Economics 17(2): 187-205	2012	Long term impact of disasters Direct damages Economy, personal income	Synthetic control method	Coffman, M., & Noy, I. (2009). A Hurricane Iniki measuring the long-term economic impact: of a natural disaster using synthetic control. Environment and Development Economics 17(2): 187-205	Synthetic control method	Level of Evidence – III Comparative Quasi-experimental	Economy post disaster and effects on persons	YES	
Cornell, V. Cusack, L. Arbon, B. Older people and disaster preparedness: a literature review. Australian Journal of Emergency Management, The, 27(3), 49.	2012	Engagement of vulnerable older people Are they vulnerable Who protects them Burden of benefit Community resilience	Review of Literature	Cornell, V. J., Cusack, L., & Arbon, P. (2012). Older people and disaster preparedness: a literature review. Australian Journal of Emergency Management, The, 27(3), 49.	Qualitative	Level of Evidence – Other Literature review		YES	The literature review was not confined to specifically the emergency management field, and also explored the disciplines of psychology
Deryugina, T. The fiscal cost of hurricanes: Disaster aid versus social insurance. American Economic Journal: Economic Policy, 9(3), 168-98.	2017	Economic cost of US hurricanes – direct and indirect	Fiscal Cost of disasters Mitigation is beneficial	Deryugina, T. (2017). The fiscal cost of hurricanes: Disaster aid versus social insurance. American Economic Journal: Economic Policy, 9(3), 168-98.	F-Tests	Level of Evidence – VI Descriptive studies	Fiscal cost of disasters are higher than thought. Mitigation programs are more beneficial. More funding for disaster relief. Expanding social safety nets benefits economy and victims	YES	
Duggan, Seana Deeny, Pat Spelman, Ruth Vitale, Catherine T Perceptions of older people on disaster response and preparedness International journal of older people nursing	2010	Non-experimental design Purpose: Qualitative study, older Sri Lanka and USA groups of older people questioned about disaster response and preparedness	Random Sri-Lanka n=9 USA n=8	Duggan, S., et al. (2010). "Perceptions of older people on disaster response and preparedness." International journal of older people nursing 5(1): 71-76.	Qualitative study	Level of evidence – VI Descriptive studies - survey	Both groups had similar issues about disaster phases and cultural perspectives. Protested rights of older persons Preventing loss of independence in responding to disasters Mistrust of govt Access to resources Self responsibility	NO	Small sample size

Author / Title / Journal	Year	Study Design	Sample	APA Citation	Data Collection	Level of Evidence	Findings	Used in Synthesis	Limitations
Fernandez, L.S. Byard, D. Lin, C.C. Benson, S. Barbera, J. Frail Elderly as Disaster Victims: Emergency Management Strategies Prehospital and Disaster Medicine	2002	non-experimental design Purpose: To identify the vulnerabilities of elderly to disasters and develop strategies to address the vulnerabilities	Random Did not list a (n) 1.Literature review of scientific studies and fieldwork reports. 2. Keywords included: elderly, disaster, and frail elderly	Fernandez, L. S., et al. (2002). "Frail elderly as disaster victims: emergency management strategies." Prehospital and disaster medicine 17(2): 67-74.	Qualitative Basic analytical methodology Medical lit search - Washington Research Libraries Consortium, Medline,	Level of evidence – VI Descriptive studies	Themes coded into 6 factors: 1) Physical Impairment 2) Diminished sensory awareness 3) Pre-existing medical conditions and sensitivities 4) Social and psychological impairments 5) Aid receipt 6) Financial vulnerability Frail elderly with the above mentioned are at high risk.	YES	Advance age alone does not equate with vulnerability
Fox, M. Rooney, C. Rowland, J. White, G. Disaster Preparedness and Response for Persons With Mobility Impairments Journal of Disability Policy Studies	2007	Non-experimental - Survey Purpose: Assess the impact of major disaster on county level preparedness for persons with mobility disabilities. To gain an understanding of response level for those with existing mobility issues and conditions. 3 topic areas: 1. County programs 2. Assessment risk 3. Assurance and policy development	Random n = 30 Survey questions to 30 randomly picked counties that had a FEMA disaster - including: parishes and reservations.	Fox, M. H., et al. (2007). "Disaster preparedness and response for persons with mobility impairments: Results from the University of Kansas Nobody Left Behind Study." Journal of Disability Policy Studies 17(4): 196-205.	Mixed Method - Quantitative and Qualitative Chi-squared test for categorical comparison and ANOVA Mann-Whitney	Level of evidence – VI Descriptive Study Survey	Retrospective level of evidence Factors and Results: 1) Policies and Practices 2) Risk 30 Policy development Findings: Those with disabilities be at the table for disaster planning Add on disability training for EMS Know the number of citizens in your county with disabilities	YES	Definition of a person with mobility impairments as someone who has moderate to complete difficulty walking or moderate to complete difficulty moving around using equipment. May use an assistive device - canes, walkers, wheelchairs. Excluded persons who were deaf, visually impaired, or with cognitive disabilities.
Gershon, RR Kraus, Lewis E Raveis, Victoria H Sherman, Martin F Kailes, June I Emergency preparedness in a sample of persons with disabilities Am J Disaster Med	2013	Emergency preparedness in vulnerable populations. Potential impact and experiences.	Cross-sectional Internet based survey Convenience sample N=253 residents who have cognitive and/or physical disabilities, receiving home services.	Gershon, R., et al. (2013). "Emergency preparedness in a sample of persons with disabilities." <u>Am J Disaster Med</u> 8(1): 35-47.	Qualitative Survey	Level of Evidence – VI	47.4 % prepared an emergency plan 63% involved home services in developing a plan 28% have a go bag 32% have supplies 26% have back up plans with home services	YES	Causality cannot be determined. Self-reported Small sample of those disabled – response bias
Gershon, R Portacolone, E Nwankwo, E Zhi, Q Qureshi, K Ravels, V Psychosocial influences on disaster preparedness in San Francisco recipients of home care Journal Urban Health	2017	Social cognitive preparedness model. 13 item disaster preparedness checklist	N=50 participants living at home receiving home services (2/2014) Additional participants from community centers age 65 and older	Gershon, R., et al. (2017). "Psychosocial influences on disaster preparedness in San Francisco recipients of home care." <u>Journal of Urban Health</u> 94(5): 606-618.	Qualitative Survey – 37-item questionnaire.	Level of Evidence – VI	60% of participants = no plans for emergencies 74% no plans for transportation to shelters 56% no back up plan for power outage 44% no contact list developed	YES	Self – selection for the study Limited to geographical area
Heagele, T. Disaster-Related Community Resilience: A Concept Analysis and a Call to Action for Nurses. Public health nursing, 34(3), 295-302.	2017	The study clarifies the meaning of the concept of community resilience as it relates to disasters.	ADEPT – Assessment for Disaster Engagement with Partners Tools and other scales Advancing Resilience Toolkit Assessment Survey	Heagele, T. (2017). Disaster-Related Community Resilience: A Concept Analysis and a Call to Action for Nurses. <u>Public health nursing</u> , 34(3), 295-302.	Qualitative	Level of Evidence – Other Literature review	Antecedents attributes, consequences, and definition of disaster-related community resilience	YES	
Hoard, M Homer, J Manley, W Furbee, P Haque, A Helmkamp, J Systems modeling in support of evidence-based disaster planning for rural areas	2005	This study deals with system dynamics to create simulation tools for disaster planners. Computer models Introduces the Brownson conceptual framework	Review of literature 3 phases	Hoard, M., et al. (2005). "Systems modeling in support of evidence-based disaster planning for rural areas" <u>International Journal of Hygiene and Environmental Health</u> , 208(1), 117-125.	Qualitative modeling	Level of Evidence – Other Literature review	Disaster scenarios and simulation to improve public health practice. Health promotion Disease prevention	YES	No Simulation model can be real enough or represent future problems

Author / Title / Journal	Year	Study Design	Sample	APA Citation	Data Collection	Level of Evidence	Findings	Used in Synthesis	Limitations
International Journal of Hygiene and Environmental Health									
Jacobs, J., Jones, E., Gabella, B., Spring, B., Brownson, R. (2012). Tools for implementing an evidence-based approach in public health practice. Preventing Chronic Disease.	2012			Jacobs, J., Jones, E., Gabella, B., Spring, B., Brownson, R. (2012). Tools for implementing an evidence-based approach in public health practice. Preventing Chronic Disease.					
Joseph, M. Faith-based leaders caring for older adults in a natural disaster: A study of hurricane sandy. (Doctoral dissertation, Molloy College). Retrieved from http://digitalcommons.molloy.edu/etd/18	2016	Faith based leaders caring for community dwelling older adults in a natural disaster	In-depth interviews of faith based leaders who care for community dwelling older persons during Hurricane Sandy	Joseph, M. (2016). Faith-based leaders caring for older adults in a natural disaster: A study of hurricane sandy. (Doctoral dissertation, Molloy College). Retrieved from http://digitalcommons.molloy.edu/etd/18	Qualitative Study	Level of Evidence – Other Literature review	Dispowerment is as the basic psychological problem during a disaster	YES	
Kar, Nilamadhab Care of older persons during and after disasters: meeting the challenge Journal of Geriatric Care and Research 2016, 3 (1): 7	2016	Review of risk factors of elders in disasters	Review of literature in	Kar, N. (2016). "Care of older persons during and after disasters: meeting the challenge." Journal of Geriatric Care and Research 2016, 3 (1): 7-12.	PubMed Disaster, older adults, care Cross references	Level of Evidence other Literature review	Increased vulnerability Impaired mobility Diminished sensory Awareness Lack of resources	NO	Review of literature
Leinhos, M Qari, S Williams-Johnson, M Preparedness and emergency response research centers: using a public health systems approach to improve all-hazards preparedness and response Journal Health Reports	2014	Speaks to the awarded Preparedness and emergency response research centers (PERRC) that produced relevant research findings. Schools of public health identified and main search domain	34 individual research projects for 4 years generated 130 peer-reviewed articles	Leinhos, M., et al. (2014). "Preparedness and emergency response research centers: using a public health systems approach to improve all-hazards preparedness and response." Public Health Reports 129(6_suppl4): 8-18.	Qualitative – Literature review	Level of Evidence VII expert committee 130 peer-reviewed articles and 80 practice tools	Supported trainings and build improved infrastructures for PH systems	NO	Tranlation Adoption Replication
Nick, Gilbert A Savoia, Elena Elgura, Loris Crowther, M Suzanne Cohen, Bradley Leary, Mary Wright, Tina Auerbach, John Koh, Howard K Emergency preparedness for vulnerable populations: people with special health-care needs	2009	Non-experimental Purpose: A collaborate symposium to develop a conceptual framework preparedness planning for future planning for populations with special health-care needs	N = 110 CBOs - long term care, group homes, visiting nurses, community health centers, non-profits, social services, EMS, public safety, public health, academia, health-care communities	Nick, G. A., et al. (2009). "Emergency preparedness for vulnerable populations: people with special health-care needs." Public Health Reports 124(2): 338.	Sample list of agencies and organizations	Level VII - Expert Committee	3 Common themes: Risk Communication Evacuation Procedures continuity of Services Barriers: Difficulty in identifying vulnerable groups Lack of coordination among emergency medical services, public health, CBOs, community leaders. Lack of emergency planning	YES	Limited sample group Only agencies serving one limited area One vulnerable group
Pekovic, Vukosava Seff, Laura Rothman, Max Planning for and responding to special needs of elders in natural disasters Generations	2007	IPurpose: Explores the special needs of healthy and frail elders in relation to planning and responding to NATURAL disasters	Review of articles	Pekovic, V., et al. (2007). "Planning for and responding to special needs of elders in natural disasters." Generations 31(4): 37-41.	Qualitative review of literature	Level of Evidence – other – Review of Literature	Elders Increased vulnerability and are at risk Cannot react fast enough to emergent situations Some refuse to leave their home	YES	Review of literature
Rosenkoetter, Marlene M Covan, Eleanor Krassen Cobb, Brenda K Bunting, Sheila Weinrich, Martin Perceptions of older adults regarding evacuation in the event of a natural disaster Public Health Nursing	2007	Evacuation needs of 2 (Columbia & Richmond) counties in Georgia ID risk factors Assist PH and EMS with planning information	N=139 lower socio/income at meal sites	Rosenkoetter, M. M., et al. (2007). "Perceptions of older adults regarding evacuation in the event of a natural disaster." Public Health Nursing 24(2): 160-168.	Qualitative survey 47 questions of 139 participants Older adult disaster evacuation assessment – OADEA	Level of Evidence VI Descriptive Survey	70% they would evacuate 16% probably evacuate 13% no or maybe they don't trust TV or officials Special needs registry for elders in the community – design community assistance	NO	Larger sample size would yield more significance Study will lead to a larger study Elimination of some questions
Roush, R Tyson, S	2012	Fragility and disability of older persons. Evaluated the	N=292 participants	Roush, R. E. and S. K. Tyson (2012). "Geriatric emergency preparedness and response workshops: an evaluation of	Qualitative Training course	Level of Evidence - VI Descriptive study	The workshops are effective Knowledge was increased	NO	Training to local context is needed if replicated

Author / Title / Journal	Year	Study Design	Sample	APA Citation	Data Collection	Level of Evidence	Findings	Used in Synthesis	Limitations
Geriatric emergency preparedness and response workshops: an evaluation of knowledge, attitudes, intentions, and self-efficacy of participants Disaster Medicine and Public Health		knowledge and use of GEPR – geriatric emergency preparedness and response education program		knowledge, attitudes, intentions, and self-efficacy of participants." <u>Disaster medicine and public health preparedness</u> 6(4): 385-392.					
Shih, R., Acosta, J., Chen, E., Carbone, E., Xenakis, L., Adamson, D., Chandra, A Improving disaster resilience among older adults. Insights from public health departments and aging-in-place efforts.	2018			Shih, R., Acosta, J., Chen, E., Carbone, E., Xenakis, L., Adamson, D., Chandra, A. (2018). Improving disaster resilience among older adults. Insights from public health departments and aging-in-place efforts.		Level of Evidence		YES	
Smith, D Notaro, Stephen Personal emergency preparedness for people with disabilities from 2006-2007 BRFSS Disability and health Journal	2009	Those with disabilities at risk for injury or death from disaster. Compares emergency preparedness of those with disabilities with those without.	N=188,288 From 6 states	Smith, D. L. and S. J. Notaro (2009). "Personal emergency preparedness for people with disabilities from the 2006-2007 Behavioral Risk Factor Surveillance System." <u>Disability and health journal</u> 2(2): 86-94.	Qualitative – self – reported from 6 states on BRFSS Chi square analysis	Level of Evidence -VI Descriptive study	Those with disabilities were not prepared at all for emergencies No 3-day water supply No radio No flashlight No idea how to evacuate Were 1.22 times unprepared	NO	Proxy per phone interviews may have occurred Does not include facilities – nursing homes Definition of disability is limited dataset Does not represent the diversity of US
Stough, L World report on disability, intellectual disabilities, and disaster preparedness:Costa Rica as a case example Journal of Policy and Practice in Intellectual Disabilities	2015	Non-experimental design. Expert report about disabilities and disaster preparedness. Covered wide range of disabilities with a focus on intellectual disability	Literature review on existing studies	Stough, L. M. (2015). "World Report on Disability, Intellectual Disabilities, and Disaster Preparedness: Costa Rica as a Case Example." <u>Journal of Policy and Practice in Intellectual Disabilities</u> 12(2): 138-146.	Qualitative	Expert Committee Report Level VII	Those with physical disabilities: Delayed evacuation Lack of home improvement funds to make Data on intellectual disability Disability enhances vulnerability	YES	Some of the studies were limited in size and scope. Countries have different geographical terrain that can cause vulnerabilities
Van Willigen, Marieke Edwards, Terri Edwards, Bob Hessee, Shawn Riding out the storm: Experiences of the physically disabled during Hurricanes Bonnie, Dennis, and Floyd Natural Hazards Review	2002	Interviewed people via phone interview in N. Carolina About hurricane Bonnie, Dennis & Floyd Primarily physical disabilities compared to others	N= 935 N=559 N=383	Van Willigen, M., et al. (2002). "Riding out the storm: Experiences of the physically disabled during Hurricanes Bonnie, Dennis, and Floyd." <u>Natural Hazards Review</u> 3(3): 98-106.	Qualitative Interview survey on the phone Random Dialing	Level of Evidence Descriptive study	Households with a disabled person less likely to evacuate from their home.	NO	Self-reported
Whitney, E., Visker, J.,Haithcox-Dennis, M. J., & DeWeese, A. Independently Living Rural Seniors and Emergency Preparedness: A Pilot Study in Southern Illinois. Health Educator	2012	Pilot Study	N=85 Convenience Sample	Whitney, E., Visker, J.,Haithcox-Dennis, M. J., & DeWeese, A. (2012) Independently Living Rural Seniors and Emergency Preparedness: A Pilot Study in Southern Illinois. <u>Health Educator</u> , 44(1), 21-27.	Qualitative survey 39-item instrument questions	Level of Evidence VI Descriptive Survey	Descriptive – 13- Likert scale Cronbachs	YES	Small sample size, reliability low with Cronbachs alpha, and homogeneity group

Appendix B

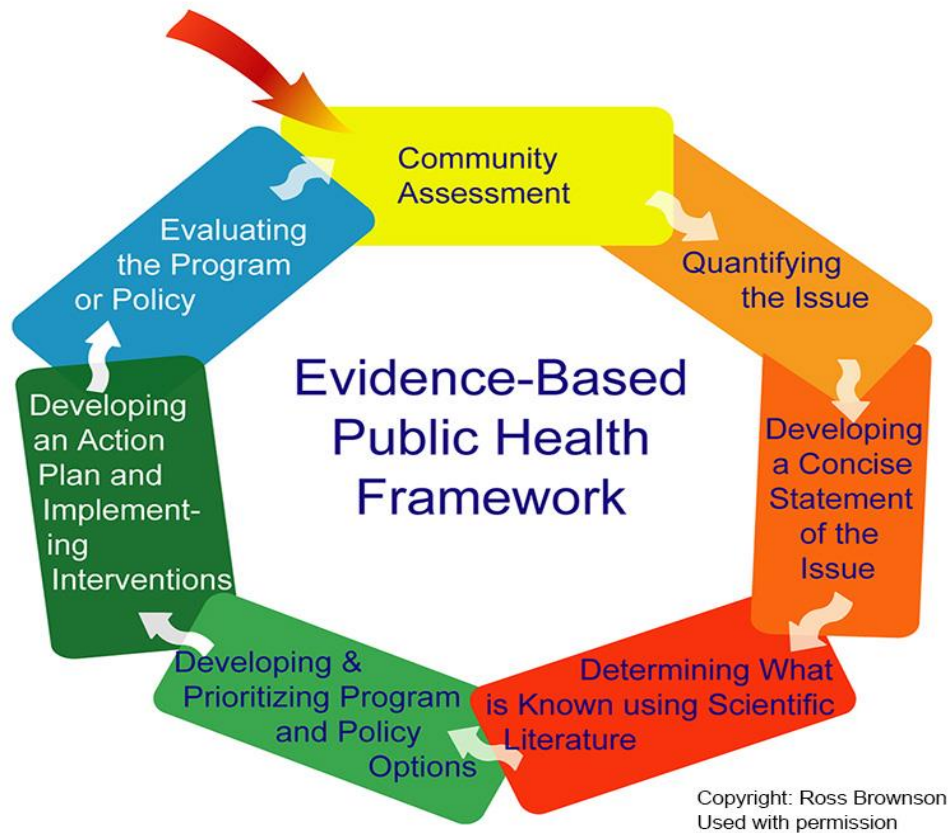
Table 1A.

Levels of Evidence

Levels of Evidence	Types of Evidence	Number of Articles
I	Meta-analysis	
II	Experimental design (RCT)	
III	Quasi-experimental design	2
IV	Case-controlled, cohort, longitudinal studies	
V	Correlation studies	
VI	Descriptive studies	9
VII	Authority opinion or expert committee reports	3
other	Performance Improvement; Review of Literature	4
		n = 18

Appendix C

Brownson's Evidence-based Public Health Framework



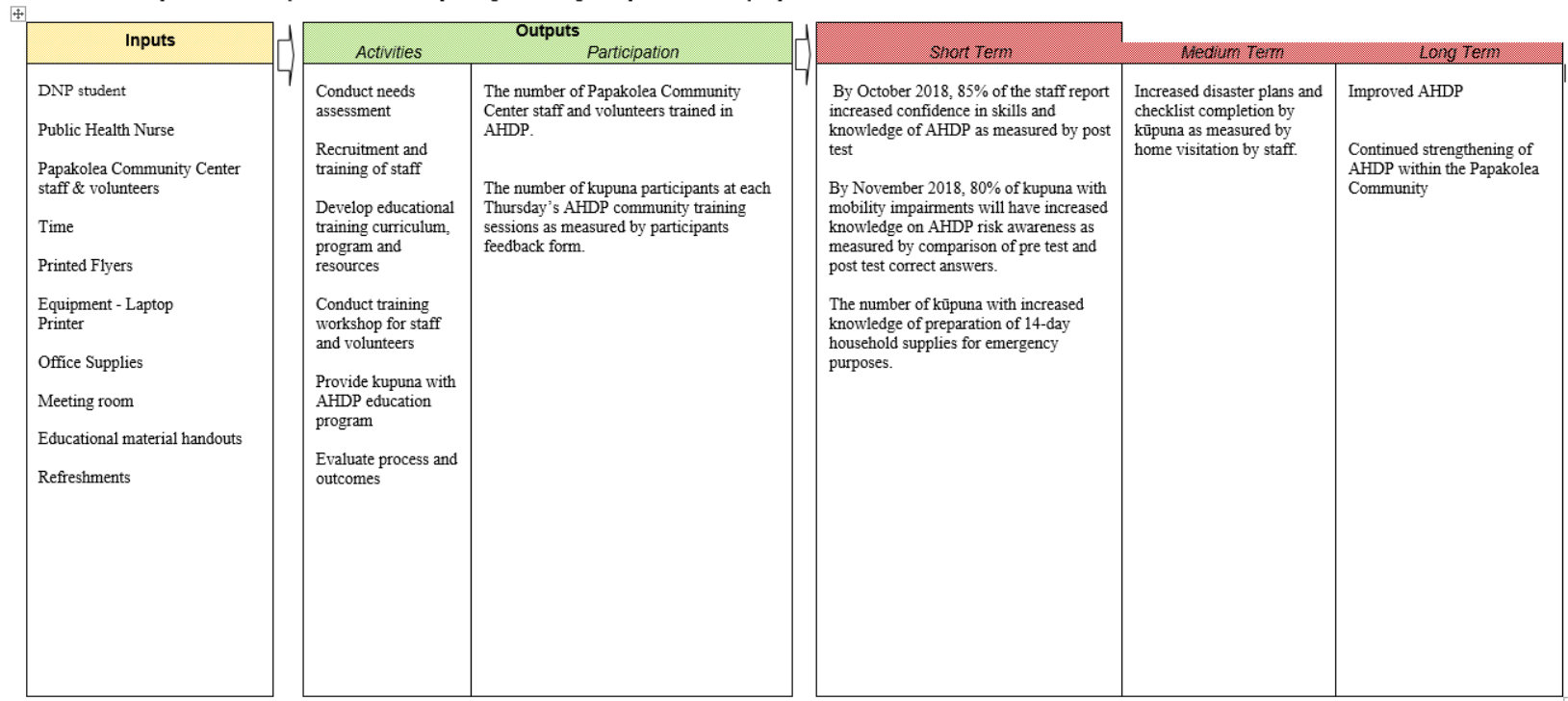
Source: Brownson's Evidence-based Public Health Framework. Association of State and Territorial Health Officials (2017). Evidence Based Public Health. Retrieved from <http://www.astho.org/Evidence-Based-Public-Health/Toolkit/>

Appendix D

Logic Model

Program: AHDP for kupuna with mobility impairments

Situation: The Papakōlea Community Center seeks AHDP planning and training for kupuna with mobility impairments.



Assumptions:

1. Kūpuna are slow to evacuate and cannot take immediate action during an emergency.
2. Community is aware of the barriers that kupuna with mobility impairments experience.
3. Facilities at the Papakōlea Community Center will be available for trainings

External Factors:

1. Support from families and neighbors to assist kupuna during disasters
2. Resources and funding will be through the community center.
3. Literature supports disaster education and intervention programs for elders.

Appendix E

Human Studies Program



UNIVERSITY
of HAWAII*
SYSTEM

Office of Research Compliance
Human Studies Program

August 2, 2018

MEMORANDUM

TO: Maureen Shannon, CNM, FNP, PhD, FAAN, FACNM
Professor and Graduate Chairperson
Frances A. Matsuda Endowed Chair in Women's Health
School of Nursing and Dental Hygiene
University of Hawaii at Mānoa

FROM: Victoria Rivera *Victoria Rivera*
Director, Office of Research Compliance, Human Studies Program
University of Hawaii

SUBJECT: Doctor of Nursing Practice Program

This memorandum intends to clarify the University of Hawaii (UH), Human Studies Program position regarding the quality improvement (QI) project required by the UH School of Nursing and Dental Hygiene's Doctor of Nursing (DNP) Program.

As described in your letter dated July 26, 2018 (attached), students enrolled in the DNP Program are required to complete a QI project in order to meet the *AACN Essentials of Doctoral Education for Advanced Nursing Practice* for this professional degree. According to the AACN guidelines, since this is a practice doctorate, "requiring a dissertation or other original research is contrary to the intent of the DNP. The DNP primarily involves mastery of an advanced speciality within nursing practice."

Therefore, by definition, the DNP quality improvement project required by the UH School of Nursing is not considered human subjects research as defined under federal regulations at 45 CFR 46. To very briefly summarize, *research* is a systematic investigation designed to contribute to generalizable knowledge, and *human subject* means a living individual about whom an investigator conducting research obtains 1) data through intervention or interaction with the individual or 2) identifiable private information. Quality improvement/program evaluation focuses on making judgements about the program, to improve or further develop program effectiveness, and inform decisions about future programming. As part of the DNP program, students are familiarized with the difference between conducting a QI project and a research project.

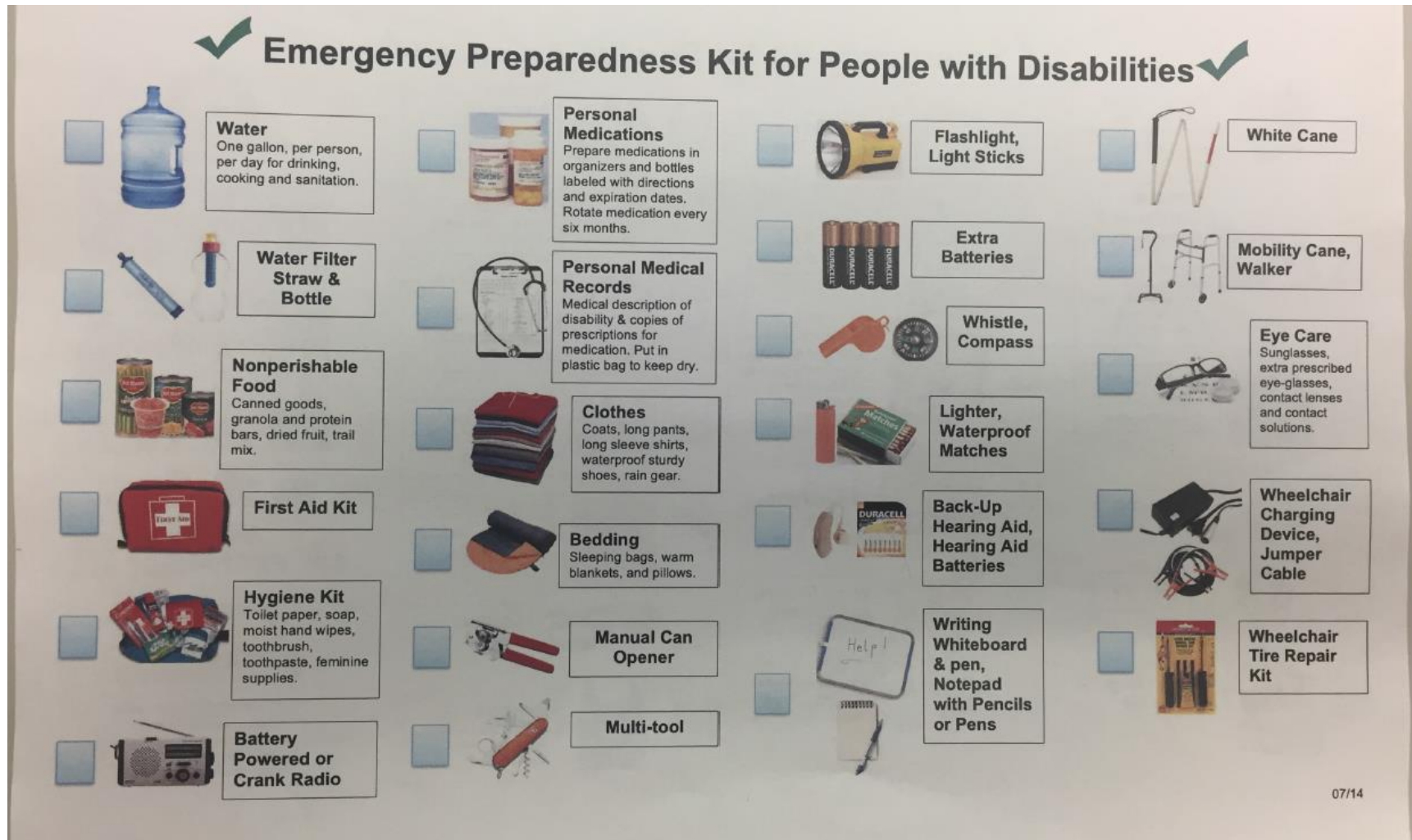
Given the purpose of the DNP quality improvement project, it is the position of the UH Human Studies Program that these projects are considered "NOT human subjects research" (NHRSR) and as such, does not require IRB review. To be clear, this is not a determination of "Exempt" status under 46.101, as these are categories of *research* considered to be exempt from IRB review. Please ensure that DNP students understand that the results of these types of QI projects may be presented or published, but must not be labeled as human subjects research.

Please feel free to contact our office for any questions.

2425 Campus Road, Sinclair 10
Honolulu, Hawaii's 96822
Telephone: (808) 956-5007 • Fax: (808) 956-9150
An Equal Opportunity/Affirmative Action Institution

Appendix F

Emergency Preparedness Kit for People with Disabilities



Appendix G

Personal Support Network Card

Emergency Plan	
Meeting Place _____ Location _____ Emergency Contact _____ Phone # _____ Emergency Contact _____ Phone # _____	Meeting Place _____ Location _____ Emergency Contact _____ Phone # _____ Emergency Contact _____ Phone # _____
Meeting Place _____ Location _____ Emergency Contact _____ Phone # _____ Emergency Contact _____ Phone # _____	Meeting Place _____ Location _____ Emergency Contact _____ Phone # _____ Emergency Contact _____ Phone # _____
Meeting Place _____ Location _____ Emergency Contact _____ Phone # _____ Emergency Contact _____ Phone # _____	Meeting Place _____ Location _____ Emergency Contact _____ Phone # _____ Emergency Contact _____ Phone # _____

Appendix G (Continuation)

Personal Support Network Card

<div></div>		<div></div>	
Neighbor Support Network		Neighbor Support Network	
#1		#1	
#2		#2	
#3		#3	
<div></div>		<div></div>	
Neighbor Support Network		Neighbor Support Network	
#1		#1	
#2		#2	
#3		#3	
<div></div>		<div></div>	
Neighbor Support Network		Neighbor Support Network	
#1		#1	
#2		#2	
#3		#3	
<div></div>		<div></div>	

Appendix H

Risk Awareness

RISK AWARENESS

INDIVIDUAL:

Do you live alone?

Do you have transportation?

Do you have any physical or medical limitations?

Do you have trouble hearing and seeing well?

Do you rely on a caregiver?

HOME RISK:

Is your home structure safe and can it withstand hurricane winds?

Is your home easily accessible?

COMMUNITY RISK:

Do you live by a stream or river?

Has flooding occurred in your community?

Can an ambulance or fire vehicles access the homes easily?

Appendix I

Make a Plan



Make A Plan

Your Doctor:
Name _____
Ph# _____
Pharmacy Ph # _____

Meeting Place:

Location:

Emergency Contact:
Name _____
PH# _____

School Shelters:
Stevenson Middle
McKinley High

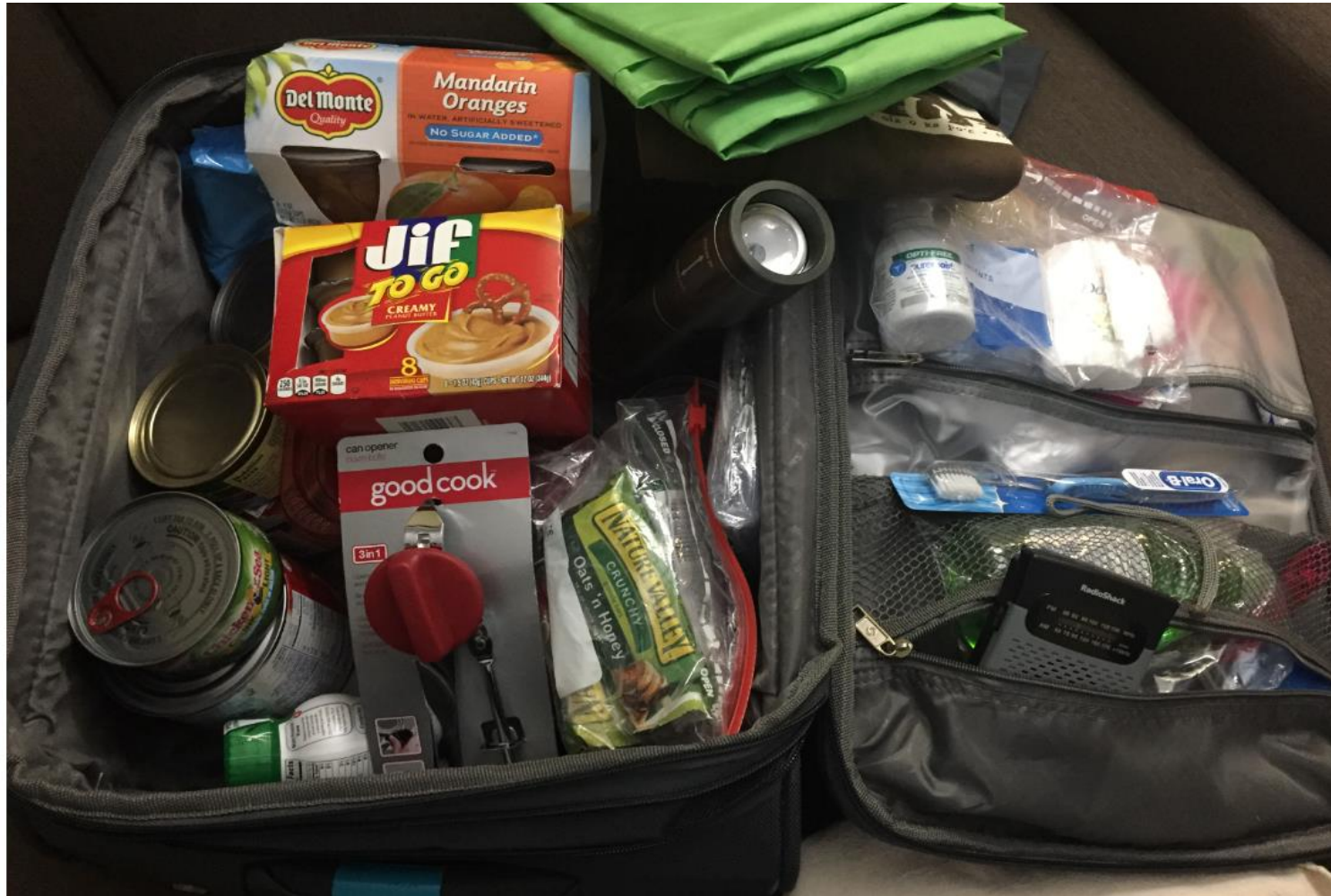
Medical Equipment Stores:
Dauterman – 808-591-8860
ACE – 808-955-6999
Hawaiian Islands Medical –
808-597-8087

Note: Label equipment -
walkers, canes, and
wheelchairs with name &
phone number

2

Appendix J

Emergency Kit on Wheel

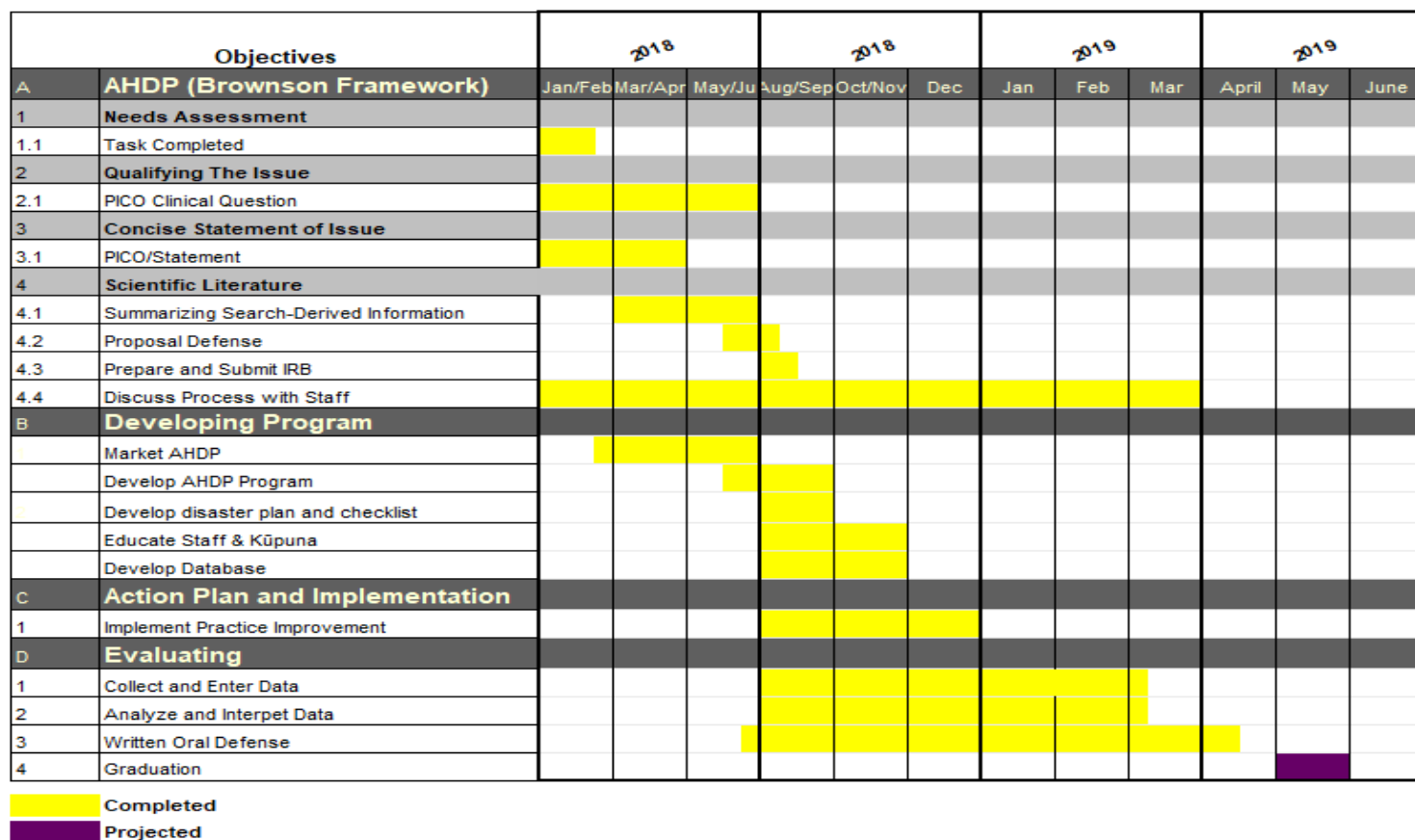


Appendix K

Gantt Chart

Improved AHDP

Michele Lani Bray



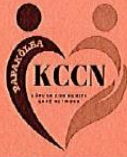
Appendix L

ALL-HAZARD DISASTER PREPAREDNESS PRETEST / POSTTEST QUESTIONS

1. A family disaster supply kit should contain:
 - a. One gallon of water per day, per person
 - b. One quart of water per day, per person
 - c. Two gallons of water per day, per person
 - d. None of the above
2. A family emergency plan should include:
 - a. A meeting place outside the neighborhood in case the family can't return home.
 - b. Smoke alarms on every floor of the house
 - c. A plan that provides for escape from every room of the home
 - d. All of the above
3. It's a good idea to identify a centrally located room in your house or space in your basement, in case you and your family need to "shelter in place?"
 - a. True
 - b. False
4. Circle the one item you should **NOT** have in your emergency supply kit.
 - a. Batteries
 - b. Water
 - c. Candles
 - d. Non-perishable food
 - e. Flashlight
5. A family emergency kit should contain medications and supplies to last for:
 - a. 7 days
 - b. 14 days
 - c. 2-3 days
 - d. 5 days

Appendix M

Participants Feedback Sample



Participant Feedback - High Tea & Disaster Preparedness Workshop

Papakōlea Community Center

November 15, 2018

(Circle one)

How informative was this presentation? (How much did you learn?)	very little 1 2 3 4 5	very much
How intersting was this presenation? (How much did you enjoy it)	very little 1 2 3 4 5	very much
Were the speaker(s) voice loud and clear?	Yes	No
Was the presentation easy to follow?	Yes	No
Were visuals clear and understandable?	Yes	No
Were the presenters organized?	Yes	No

What did you like about this workshop?

Get Packing. and get ready. Prepared ourself. Always beready.

What can we do to improve future workshops or any topics you would like to learn about?

Very Interesting.

Is there anything we can do to help you safely age in place? (Please leave your name for follow-up)

Mahalo for coming!